AMENDMENTS TO THE CLAIMS

The following claims replace all prior versions and listings of claims in the application:

1. (Currently Amended)   A method for defining tone signals in a voice activity detection (VAD) device, comprising:

defining a threshold for zero amplitude change;

calculating a zero crossing rate of a signal;

extracting a set of parameters from a plurality of duration periods of said signal;

~~defining a tolerance threshold between said plurality of duration periods when a zero amplitude change occurs;~~

calculating a maximum difference between said plurality of duration periods; and

comparing said maximum difference with said threshold.

2. (Currently Amended)   The method of claim 1, wherein said calculating said zero crossing rate comprises:

determining, for a signal sample with a zero value amplitude at the zero crossing point, a tangent value of the sample; and

defining the zero value amplitude as a non-zero value depending upon the tangent of said sample point.

3.   (Currently Amended)   The method of claim 2, wherein said defining comprises

defining said zero value amplitude according to whether said tangent is positive or

negative.

3.   (Cancelled)

4.   (Currently Amended)   The method of claim 1, further comprising:

        where a portion of said signal does not contain a zero crossing point,

defining a range of said signal that ~~does not contain~~ contains a zero crossing point;

        extracting a set of parameters from a plurality of duration periods of said range;

        calculating a maximum difference between said plurality of duration periods in

said range; and

        comparing said maximum difference of said range with said threshold.

5.   (Currently Amended)   The method of claim 1, wherein the maximum difference

is calculated between a sum of all said durations and a single said duration.

6.   (Currently Amended)   The method of claim 1, wherein the maximum difference

is calculated using a mean difference between a sum of all said durations and a single

duration.

7.   (Currently Amended)   The method of claim 1, wherein the method defines tone

signals according to an International Telecommunications Union (ITU) recommendation

G.729 Annex B VAD device.

8.   (New)   The method of claim 1, wherein said calculating said maximum

difference comprises calculating a product between the sample and the sample's

adjacent sample in a group of signal samples.

9.   (New)   A device for defining tone signals for voice activity detection (VAD),

comprising:

    a processor that is programmed to:

    define a threshold for zero amplitude change;

    calculate a zero crossing rate of a signal;

    extract a set of parameters from a plurality of duration periods of said signal;

    calculate a maximum difference between said plurality of duration periods; and

    compare said maximum difference with said threshold.

10.   (New)   The device of claim 9, wherein said processor calculates said zero

crossing rate includes:

    determining, for a signal sample with a zero value amplitude at the zero crossing

point, a tangent value of the sample; and

defining the zero value amplitude as a non-zero value depending upon the tangent of said sample point.

11.   (New)   The system of claim 10, wherein said processor defining comprises defining said zero value amplitude according to whether said tangent is positive or negative.

12.   (New)   The system of claim 9, further comprising:

where a portion of said signal does not contain a zero crossing point, said processor defines a range of said signal that contains a zero crossing point;

extracts a set of parameters from a plurality of duration periods of said range;

calculates a maximum difference between said plurality of duration periods in said range; and

compares said maximum difference of said range with said threshold.

13.   (New)   The system of claim 9, wherein the maximum difference is calculated by the processor between a sum of all said durations and a single said duration.

14.   (New)   The system of claim 9, wherein the maximum difference is calculated by the processor using a mean difference between a sum of all said durations and a single duration.

15.   (New)   The system of claim 9, wherein the device defines tone signals according to an International Telecommunications Union (ITU) recommendation G.729 Annex B VAD recommendation.

16.   (New)   The system of claim 9, wherein the processor calculates the maximum difference includes calculating a product between the sample and the sample's adjacent sample in a group of signal samples.